

REMARKS

This application has been reviewed in light of the Office Action dated February 7, 2005. Claims 1-4, 8, 9 and 11-14 are presented for examination. Claims 5-7 and 10 have been canceled without prejudice or disclaimer of subject matter, and will not be mentioned further. Claims 1, 2 and 8 have been amended to define still more clearly what Applicants regard as their invention. Claims 4 and 9 have been amended as to matters of form only. No change in scope is either intended or believed effected by these latter changes. Claims 11-14 have been added to provide Applicants with a more complete scope of protection. In addition, the title has been amended as kindly suggested by the Examiner. Claims 1, 4, 8, 9, 11 and 14 are in independent form. Favorable reconsideration is respectfully requested.

The Office Action states that the title of the invention is not descriptive. The title has been amended to read, as suggested by the Examiner, as follows:

--IMAGE PROCESSING METHOD AND PROGRAM CAPABLE OF
REDUCING GRAININESS--.

Applicants submit that the title, as amended, is clearly indicative of the invention to which the claims are directed.

The Office Action objected to the drawings under 37 C.F.R. §1.83(a) on the ground that “the feature of controlling the starting point in each line linking each vertex showing said plurality of chromatic colors and the vertex showing the black on said color space to independently produce the black component must be shown....” Applicants do not agree with the propriety of this objection, as they believe that the feature in question is

adequately shown in the drawings as filed (e.g., Figs. 9-12). Nonetheless, to eliminate this as an issue, amended drawings that show the mentioned feature even more explicitly, are being prepared and will be submitted shortly. It is believed that the objection to the drawings has been remedied, and its withdrawal is respectfully requested.

Claims 1, 2 and 8 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicants believe that the claims are sufficiently enabled by the specification and do not understand the Examiner's assertion that one of ordinary skill in the art would not be able to make or use the claimed invention without undue experimentation. Nonetheless, Claims 1, 2 and 8 have been carefully reviewed and amended for clarification, and as deemed necessary to ensure that they conform fully to the requirements of Section 112, second paragraph.

Claims 4-6 and 9 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. First, the cancellation of Claims 5, 6 and 10 renders the rejection of those claims moot. Claims 4 and 9 have been carefully reviewed and amended as deemed necessary to ensure that they conform fully to the requirements of Section 112, second paragraph, with special attention to the points raised in paragraph 3 of the Office Action. Specifically, the phrase "said color reproduction" has been replaced with "a color reproduction." It is believed that the rejection under Section 112, second paragraph, has been obviated, and its withdrawal is, therefore, respectfully requested.

Applicants note with appreciation the indication that Claims 4 and 9 would be allowable if rewritten so as to overcome this latter formal rejection. Since it is believed

that that rejection has been overcome, Applicants respectfully submit that Claims 4 and 9 are in condition for allowance.

Claims 1-3 and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,982,990 (Gondek).

As shown above, Applicants have amended independent Claims 1 and 8 in terms that more clearly define what they regard as their invention. Applicants submit that these amended independent claims, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons. Further, Applicants submit the following comments regarding the patentability of new independent Claims 11 and 14 over the cited reference.

Claim 1 is directed to an image processing method for determining a starting point which produces a black component between vertices showing a plurality of chromatic colors and a vertex showing a black in a reproducible color space of a color output apparatus. An amount of the black component between the starting point and the vertex shows the black and an amount of a complementary color component. The starting point is determined when a look-up table for converting an input color signal into a plurality of color components including a black component is prepared. The method includes the steps of (1) determining the starting point which produces the black component based on the value of the complementary color component corresponding to the chromatic color which is inconspicuous in a graininess of a black recording material in an output image; (2) determining the amount of the black component between the starting point and the vertex showing the black by linearly increasing the black component from the

starting point to the vertex showing the black, independently of the complementary color component corresponding to the chromatic color; and (3) determining the amount of the complementary color component based on the determined amount of the black component.

Among other notable features of Claim 1 are (1) determining the amount of the black component between the starting point and the vertex showing the black by linearly increasing the black component from the starting point to the vertex showing the black, independently of the complementary color component corresponding to the chromatic color; and (2) determining the amount of the complementary color component based on the determined amount of the black component.

Gondek relates to an ink jet printing system and method for converting RGB images to images represented in CMYLcLmK, in which Lc is a low-dye-load cyan and Lm is a low-dye-load magenta. To convert the RGB image, Gondek used a conversion table that is a 3-dimensional matrix which is indexed by RGB and contains values for each of the 6 output planes (i.e., CMYLcLmK). Control points are provided to specify transitions from white to black, from white to each of R, G, B, C, M and Y, and from each of R, G, B, C, M and Y to black. In addition, control points are used to specify the transitions between primaries and secondaries. (Column 7, lines 41-46.)

For example, in the transition from yellow to red, first low-dye magenta, along with yellow, is used to create an orange color. After this, high-dye magenta and yellow are used to complete the transition to red. To develop empirically the control points that are needed, once a set of control points are provided, test charts are printed, and

additional control points may be specified as needed to ensure smooth color transitions, maximum color gamut, and ink coverage. (Col. 7, lines 46-54.)

Nothing has been found in Gondek, however, that would teach or suggest “determining the amount of the black component between the starting point and the vertex showing the black by linearly increasing the black component from the starting point to the vertex showing the black, independently of the complementary color component corresponding to the chromatic color,” or “determining the amount of the complementary color component based on the determined amount of the black component,” as recited in amended Claim 1. That is, Gondek does not disclose that the amount of black component is determined independently of the complementary color component, and the complementary color component is then determined based on the determined amount of black component.

Accordingly, Applicants submit that Claim 1 is allowable over Gondek.

A review of the other art of record has failed to reveal anything which, in Applicants’ opinion, would remedy the deficiencies of the art discussed above, as a reference against Claim 1.

Independent Claim 8 is a program claim corresponding to method Claim 1, and is believed to be patentable over Gondek for at least the same reasons as discussed above in connection with Claim 1.

New Claim 11 is directed to an image processing method for determining a starting point which produces a dark color component between vertices showing a plurality of chromatic colors and a vertex showing a black in a reproducible color space of a color

output apparatus. An amount of the dark color component concerning a complementary color component corresponding to a chromatic color between the starting point and the vertex showing the black and an amount of a light color component concerning the complementary color component corresponding to the chromatic color. The starting point is determined when a look-up table for converting an input color signal into a black component and a plurality of color components of different densities to be used in identical system color reproduction. The method includes the steps of (1) determining the starting point which produces the dark color component based on the value of the light color component concerning the complementary color component which is inconspicuous in a graininess of a dark color recording material concerning the complementary color component corresponding to the chromatic color in an output image; (2) determining the amount of the dark color component between the starting point and the vertex showing the black by linearly increasing the dark color component from the starting point to the maximum value of the dark color component, independently of the light color component; and (3) determining the amount of the light color component based on the determined amount of the dark color component.

For substantially the same reasons discussed above with respect to Claim 1, Applicants submit that nothing has been found in Gondek that would teach or suggest “determining the amount of the dark color component between the starting point and the vertex showing the black by linearly increasing the dark color component from the starting point to the maximum value of the dark color component, independently of the light color

component,” or “determining the amount of the light color component based on the determined amount of the dark color component,” as recited in amended Claim 11.

Accordingly, Applicants submit that Claim 11 is allowable over Gondek.

A review of the other art of record has failed to reveal anything which, in Applicants’ opinion, would remedy the deficiencies of the art discussed above, as a reference against Claim 11.

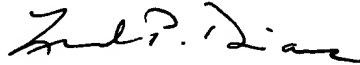
Independent Claim 14 is a recording medium claim corresponding to method Claim 11, and is believed to be patentable over Gondek for at least the same reasons as discussed above in connection with Claim 11.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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